

NMHC/NAA Comments
State Fire Marshal (SFM) Proposed Changes – California Code Adoption
Health and Safety Code Section 13143 Concerning
Section 504.2 of the 2006 IBC
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Contact: Ron Nickson, NMHC
Phone: 202/974-2327

Commercial Sector Comments. As part of the National Multi Housing Council/National Apartment Association's (NMHC/NAA) review of the State Fire Marshal (SFM) proposed changes, NMHC/NAA reviewed the SFM justification included in a separate document and the comments submitted by the commercial sector. NMHC/NAA do agree wholeheartedly with the commercial sector comments and we also note that little, if any, technical justification is submitted to support the proposed changes.

Of particular interest is that the commercial sector, without exception, takes issue with the proposed changes to Chapter 5 concerning building height and area which included changes to the sprinkler provisions.

The comments below are an expansion of the comments submitted by the commercial sector to Chapter 5, directed to the proposed changes to Section 504.2 concerning R-2 Occupancies (apartments) and the use of the NFPA 13R sprinkler system.

Office of the State Fire Marshal Proposed Change Section 504.2. NMHC/NAA's major concern is the modification to Section 504.2 removing the provisions that allow an extra story and an additional building height of 20 feet with the installation of an NFPA 13R sprinkler system. The extra story and 20 feet in building height allowed in the IBC has been permitted in other parts of the country for several years without any adverse impact on life safety or property protection. In fact, quite the opposite is true, as reported by Operation Life Safety after tracking fires in buildings with the NFPA 13R sprinkler system for several years and reporting no loss of life in any of the fires. The Operation Life Safety experience is supported by more recent NFPA data that shows that within the last 12 years there have been no civilian or firefighter deaths in buildings protected with an NFPA 13R sprinkler system.

NMHC/NAA do understand the concern that the SFM has with allowing the extra story and 20 feet in building height because it is not permitted in the existing California code and thus the California officials do not have experience on how well the 13R system works. SFM should, however, be open to accepting the NFPA 13R sprinkler system, with the extra story and 20 feet in building height, as permitted in the IBC because it has proven to be a safe, cost-effective means to save lives (both firefighter and civilian) along with reductions in property loss in residential occupancies in other parts of the country.

Sprinkler Effectiveness. The effectiveness of NFPA 13R residential sprinkler systems is supported by the latest data from NFPA compiled in August 2005.

Apartments, with a 96-percent sprinkler performance reliability record, have the highest sprinkler performance rating of any occupancy. This is followed by the 90-percent sprinkler performance reliability record for hotels and motels; both are better than the average performance reliability rating for all occupancies of 89 percent.

In wet pipe systems, which are used in most residential occupancies, 97 percent of the fires are confined to the fire-rated compartment of origin, and 69 percent of the fires are confined to the object of origin.

The above statistics support the basis for and the development of the NFPA 13R sprinkler system designed to have sprinkler coverage in the areas where the majority of the fires start in residential properties (kitchen: 31.2 percent; bedroom: 27.2 percent; living room, family room, or den: 20.2 percent). The data also show that the systems are working as designed and that the major design difference between an NFPA 13R system and an NFPA 13 system (which requires sprinklers in confined spaces where very few fires start such as the attic or ceiling/roof assembly or concealed space: 0.3 percent; ceiling/floor assembly or concealed space: 0.3 percent) is not having an impact on the ability of the NFPA 13R system to save lives.

Area Modifications (Area Increase). Concerns about allowable building area increase with the installation of a NFPA 13R sprinkler system are unfounded because the allowances in Section 506.3 for automatic sprinkler system increase are permitted only with the installation of the NFPA 13 sprinkler system. The area increases permitted by

Section 506.2 for frontage are allowed based on building setback and apply to buildings with or without sprinkler protection.

Area Modifications (Maximum Area Determination). Section 506.4 Area determination, which is sometimes confused as an area increase but is really a limit on overall building size, with special requirements for buildings with NFPA 13R sprinkler systems being four times that allowed for a single-story building per Table 503 as modified by the frontage increase per Section 506.2. This limit is nothing more than a limit on building size based on the area of the first floor. The area increase of two times the area of a single-story building for buildings two stories above grade and three times the area of a single-story for buildings more than three stories above grade, which includes the sprinkler area increase permitted by Section 506.3, do not apply to buildings with an NFPA 13R sprinkler system.

Truss Construction. The 97-percent effectiveness of sprinklers to confine fires to the fire-rated compartment of origin is important in the consideration of firefighter safety and the concerns of the fire community about truss construction in the roofs and floors of residential occupancies. Yes, the trusses are there and a few fires do get into the trusses, but because of the compartmentalization required in residential occupancies, very few fires spread to the confined areas in the roof/ceiling or floor areas. It should also be noted that as a result of NMHC/NAA's discussion with local fire and building officials and their concern about fires starting on balconies and then spreading to the attic, the IBC does require sprinklers on exterior combustible balconies (Section 903.3.1.2.1) in addition to the requirements of NFPA 13R.

Compartmentalization/Balanced Fire Protection. All residential occupancies, including those with NFPA 13R sprinkler systems, have a higher level of compartmentalization for **balanced fire protection** than any other construction type. Individual dwellings and sleeping rooms are required to be separated from each other by 1-hour fire-rated walls and floors. The only modification to the separation requirements permitted with the installation of an NFPA 13R system is an allowance for one-half-hour-rated corridors (Table 1017.1). The reduction for separations between dwelling and sleeping units permitted by Section 708.3 applies only to buildings with NFPA 13 sprinkler systems. Other sprinkler trade-offs in the IBC permitted with the installation of the NFPA 13R sprinkler system are only allowed when the area protected by the NFPA 13R sprinkler system has the same level of protection as that required by an NFPA 13 sprinkler system. In other cases what appear to be trade-offs with the NFPA 13R sprinkler system are really code provisions to require sprinkler protection in the concealed areas (floors/ceilings) where sprinkler protection is not required with the NFPA 13R sprinkler system. To get the trade-off sprinklers have to be installed in the concealed area, giving the area protection equivalent to that provided by an NFPA 13 sprinkler system.

Property Protection. The statement in the NFPA 13R sprinkler standard that the system is designed for limited property protection should be evaluated in light of where the system is allowed. It is not designed for or allowed in storage occupancies where a greater level of property protection is required. It is only allowed in residential occupancies where the major concern is life safety and thus the requirement for quick-response sprinkler heads. The quick-response sprinkler heads in these residential occupancies do provide a high level of property protection for the residential occupancy because they react faster to provide a high level of life safety protection, which is more critical than the need for property protection.

Four-Story Townhouses. The proposed change to Section 504.2 will require four-story townhouses to have NFPA 13 sprinkler systems. The proposed Exception 1, to Section 903.2.7, to not require sprinklers in one- and two-family dwellings and multiple single-family dwellings (townhouses) is limited to townhouses three stories above grade. This exception covers the dwelling types covered by the ICC International Residential Code. In the ICC codes four-story townhouses fall under the provisions of the IBC. Height and area of four-story townhouses is controlled by Table 503, which allows three stories for Type VA construction. The extra story is permitted with the installation of a sprinkler system and with the proposed California change to Section 504.2 that would have to be an NFPA 13 system, not an NFPA 13R system that is presently permitted by other jurisdictions that use the IBC.